PERSONALIZED HAND HELD CALORIE COMPUTER (ECC)

BACKGROUND—FIELD OF INVENTION

This invention relates generally to hand held computers and, more specifically, to a totally new way such a device with food and exercise listings in its memory is programmed to utilize personal characteristics and activity sensing devices to individually custom tailor physical and dietary parameters such as optimum weight, daily/exercise calorie burning rates, daily caloric/fat input targets, and caloric inputs/outputs in a comprehensive nutrition and exercise management system.

BACKGROUND—DESCRIPTION OF PRIOR ART

More people everywhere are trying to gain control of their weight for personal and medical reasons. Medical science has made tremendous progress in the area of understanding human weight control and more importantly the health hazards brought on by not maintaining a diet which is more relevant to individual life styles and physical needs. Unfortunately, this wealth of new found knowledge has succeeded only in creating an information overload to the populace in general.

Anyone desiring to control his/her weight has to find out his/her metabolic rate at rest, consult long lists of exercise caloric burning rates, calculate his/her caloric burning rates for each exercise using the listed data and his/her metabolic rate, consult cumbersome books listing calories and fat content of foods, document this data daily and manually track this data on an on going basis.

Furthermore, it has been proven that sudden and significant changes in diet activates the body's natural resistance to weight changes by adjusting its metabolic rate ultimately resulting in the individual regaining any weight losses before the body's metabolism settles down. This is a serious source of frustration for chronic dieters.

Some devices now available to the public simply allow the individual to add calories taken in or deduct calories burned during exercises based on information derived from food/exercise lists, odometer readings, pedometer readings and exercise machine time/calorie counters. Others have limited internal lists in which as many food items as possible are bunched into caloric groups. The user selects these ambiguous food groups through the complex manipulation of switches to enter the caloric amounts of foods eaten, which are then totaled. These methods have several inherent problems in common. First, and most important is that they are extremely complicated to use. Second, the devices' accuracy depend on the individual's ability to refer to and interpret complex lists of food and exercises or his/her calculating abilities. Third, the individual has to manually track the historical data. Fourth, the individual does not get scientifically derived weight, diet and exercise targets. Fifth, they assume that everyone's goal is to lose weight. Sixth, they do not take into consideration medically driven dieting, athletic dieting, weight gain dieting etc. Seventh, they do not establish targets. Eighth, they do not let the user know how they are doing over a period of time longer than a day. Ninth, they do not utilize a gradual increase/decrease in daily caloric targets to prevent the body from making metabolic rate changes to maintain its weight. Finally, they do not provide alarms to let the user know when they are overshooting their daily targets.

There is software available for PCs which take a scientific approach, establish target weights, diet and daily exercises

and which have extensive food and exercise lists to choose from for anyone wishing to lose weight. Although this approach is moving more in the right direction it still has four drawbacks for business people and active people on the go: First, even laptop computers are too cumbersome and costly for daily use. Second, the programs are not interactive so the user still has to document the most basic exercises and later enter them into the PC. Third, they only deal with weight loss diets. Fourth, they do not address weight gain nor medically driven diets.

U.S. Pat. Nos. 4,100,401 to Eugene F. Tutt and Rita C. Tutt and 4,159,416 to Carl J. Brajnik and William T. Whitlow are in the form of wristwatches capable of adding numbers derived from manual lists or charts indicative of caloric intake and holding these totals. The former deducts numbers obtained from exercise lists or derived from complicated calculations from the running caloric count. The latter converts the wearers pulse to calories expended which is in turn deducted from the total calories. The pulse conversion to calories has proven to be an extremely inaccurate means of calculating caloric output. U.S. Pat. No. 4,192,000 to Elmer P. Lipsey is a belt or pocket worn device which accurately measures the individual's caloric output and continuously accumulates expended calories. This invention, however, does not track input calories. U.S. Pat. Nos. 4,244,020 (1981), 4,321,674 (1982), and 4,575,804 (1986) are hand held calculators which utilize complicated coded keys and special coded food reference lists to enter the individual's caloric input. U.S. Pat. No. 4,686,624 to Dominique Blum is a portable device with a stored food listing which allows a direct food to caloric input conversion and accumulation without referring to reference lists intended for use only in medical applications. It does not track output calories. U.S. Pat. No. 4,796,182 to Gary Duboff is a hand held device which starts with the individual's daily caloric budget and the user deducts caloric input by selecting buttons bearing food categories which convert to calories consumed. This device has the advantage of not using an external look-up list. The general food item entry approach, however, yields highly inaccurate results because many foods and dishes are combinations of food items which should be considered in that context. A cheeseburger for instance contains cheese, beef, bread, lettuce, onions and tomatoes. It is much simpler and accurate to enter this cheeseburger as a food item having a certain amount of calories and fat. This device does not track output calories. U.S. Pat. No. 4,894,793 to Yutaka Ikemoto and Akiyoshi Yamashita is a hand held calculator with a food list in an internal memory which allows direct conversion to calories consumed by selecting and entering the food items. This device tracks only consumed fat and calories. U.S. Pat. No. 5,233,520 to Mary J. Kretsch, Moira A. Gunn and Alice K. Fong is an interactive desk top PC system consisting of a centralized computer and various desk top computers at individuals' homes used for diet surveying purposes only. This system has food lists in memory and tracks calories consumed, but it is not a hand held device and it does not track output calories. U.S. Pat. No. 4,380,802 to Richard B. Segar and Lewis C. Marascalco uses a modified calculator to store coded caloric quantities representing foods consumed which can be retrieved by the user by first referring to coded food listings and then using the codes to retrieve the data from the device (col.2, ll. 40 to 48). Thus, Segar's invention requiring external coded food listings is not self contained as is applicants' present invention with the capability of storing an excess of 2000 food items and their caloric/fat contents which can be easily retrieved by the user

3

on demand without the use of any external references. In addition, the prior art (Segar et al) also has coded numbers roughly representing coded caloric burn rates which the user also retrieves by referring to external coded activity listings (col. 2, ll. 32 to 39). The applicants' present invention is self contained in this regard also automatically providing the appropriate physical activity caloric burn rate when the user selects the activity from the exercise menu without the use of any external references. Segar requires that the user constantly change activity codes, start the activity and stop the activity throughout the day in order to acquire an accurate caloric output (col. 4, l. 54 to col. 5, l. 5). This is highly problematic for two reasons. First, the individual has to constantly stop and look up activities and charts. Second, if the user forgets to change an activity it is difficult to correct that day's caloric output since the device continues to run. Unlike Segar, the applicants' present invention automatically calculates the users daily calories burned during daily routine activities based on the individual's physical characteristics and normal activity level. Therefore, the user need only start and stop higher levels of activities such as running or riding a bicycle. This results in a more accurate and much more convenient means of tracking the individual's daily calories burned. U.S. Pat. No. 5,412,564 to Gunes M. Ecer uses a smart card which can be electronically updated to record an individuals caloric intake at check-out counters, restaurants and grocery stores (col. 2, ll. 55 to 66). His system requires a centralized computer an IC card read write unit, display units, printers, a bar code reader, and a keyboard (FIG. 1) at each store or restaurant in order to sense calories of food products purchased. When a card user pays for food products he presents his smart card to the checker who inserts it into an IC card read/write unit. The computer senses the information from the smart card, adds data from the bar code reader representing food purchased to the user's daily totals and provides an updated print out for the user (FIG. 2). This prior art requires a special set-up at every store and restaurant that the user frequents. It does not provide a means of updating at the users residence, when

4

invited to dinner at someone else's home, when purchasing food at restaurants and stores not equipped to update the card or when eating lunch at work. Furthermore, groceries purchased at grocery stores would be evenly divided as consumed by the whole family, presumably, at the time of purchase. In reality groceries purchased are not eaten in equal portions by all family members i.e. baby formula is purchased with groceries but only eaten by babies. In addition food purchased at a grocery store is eaten over an indefinite period of time, i.e. leftovers are eaten several days after a meal. This prior art does not explain how it would handle groceries bought for one or two week periods or how to account for food eaten by dinner guests. For these reasons, Ecer's invention is clearly not functional. The applicants' invention overcomes all these obstacles because it is totally self contained allowing real time updating of stored data of calories and fat content of exact portions of foods as they are consumed. In order for this prior (Ecer) art to establish maximum daily and fat levels, the user must visit a doctor every time his physical characteristics change to obtain this data to be input into his smart card (col. 4, ll. 28 to 48). The applicants solved this problem by incorporating formulas into the present invention which derive weight targets, daily caloric targets, daily fat targets and establish individual caloric burn rates. Ecer's invention provides a print out containing the individual's nutritional status only when he makes a purchase at a store or restaurant equipped to process the smart card. (col. 3, ll. 38 to 39). The applicants' invention, on the other hand, uses a built in random access memory and an easy to use retrieval means to present the user's daily and historical caloric input, fat input and caloric output as well as corresponding targets on a display means on demand.

Table 1-1 compares the features of the prior art discussed above with the features of our invention. As the table clearly shows with the exception of U.S. Pat. No. 5,894,520 to Mary J. Kretsch, Moira A. Gunn and Alice K. Fong which has no features in common with our invention, all the other prior art in the chart has at least 2 features in common with our

TABLE 1-1

Comparison table of our invention's features to prior art's features.

FEATURES	OUR INVENTION	4100401	4159416	4192000	4244020	4321674	4380802	4575804	4686624	4796182	4894793	5412564	5233520
Hand Held Computer	●									●		●	7
Food Listing In RAM	●									●		●	7
Calories per Item of Food in RAM	●					●	●	●	●	●		●	7
Fat Content per Item of Food in RAM	●					●				●		●	7
Daily Input Calories Target Calculated Using Personal Data	●					●				●		●	8
Fat Input Target Calculated Using Personal Data	●					●				●		●	8
Daily Caloric Input Totaled	●	●	●		●	●	●	●	●	●	●	●	●
Daily Fat Input Totaled	●					●				●		●	●
Daily Caloric Output Totaled	●	●	●	●		●							
Alarms Indicating Caloric/fat Targets Have Been Exceeded	●					1	●			●		1	
Historical Listing of Daily Caloric/Fat Input	●										1		●
Historical Listing of Daily Caloric Totals (Input Cals Burned Cals)	●												
Historical Graph of Daily Caloric Inputs	●												
Weight Target Calculated Using Personal Data	●												
Historical Listing of Weekly Weight Totals	●												
Historical Graph of Weekly Weight Totals	●												

TABLE 1-1-continued

	OUR INVENTION	PRIOR ART											
Comparison table of our invention's features to prior art's features. FEATURES		4100401	4159492	4192024	4244041	4321670	4380802	4575854	4686626	4796182	4894793	5412564	5233520
Direct Input of Activity Sensor & Conversion to Burned Calories	●		2	3									
Personal Data Used to Calculate Targets & Burned Calories	●	6		4			4						
Password Protection	●												
Menu Driven Computer Access	●									●			
Screen With Plurality of Lines	●												
Special Programming for Medically Required Diets	●							●		●			
Available in Various Languages	●									5			
Full Function Calculator	●			●				●		●			
Clock and Calendar	●	●	●								7		
Alarm Clock	●	●	●										
Carbohydrate Totals					●	●		●		●			
Coded Keys and Requires Separate Listing of Foods					●	●	●	●		●			
Utilizes General Food Catagories								●					
Utilizes a Scale to Weigh and Convert Food to Calories					●			●		●			
Described as a Portable Apparatus								●	●		●	●	
Described as a Hand Held Calculator				●	●			●			●	●	
Described as a Chronometer	●	●											
Described as a Device					●	●		●		●			
Described as a Desk Top Personal Computer					●			●					●

NOTES:
1. Tracks calories only.
2. Uses pulse rate to derive burned calories.
3. Uses vertical motion sensor to derive burned calories.
4. Calculates burned calories only.
5. English and Japanese only.
6. Must refer to a metabolic rate chart, enter metabolic rate into device, refer to activity hourly burning rate charts and enter this data into device each time a new activity is started.
7. Kept in centralized computer connected to check out systems.
8. Doctor must provide or user selects preferance.

invention. However, none of the prior art in the table share all the features with our invention. The features incorporated in our invention are necessary to provide a confidential, convenient, interactive, easy to use, hand held device which provides a user with truly real time comprehensive caloric/fat targets and historical data directly tied to the individual's physical characteristics, metabolism, way of life, physical activities, and eating habits. This comprehensive information in turn allows the user to make conscious well informed health changes related to physical activities and dietary routine as often as desired to increase, decrease or maintain body weight.

OBJECTS AND ADVANTAGES

Accordingly, besides the objects and advantages of the hand held easy to use interactive personal nutrition and exercise management computer described in our above patent, several objects and advantages of the present invention are:

(a) to provide a personalized hand held computer with an extensive list of foods and their respective caloric and fat content for review in deciding daily diet or for entry before or after consumption;

(b) to provide a personalized hand held calorie computer with an extensive list of exercises and their respective calorie burning properties for review or for entry when performed;

(c) to provide a personalized hand held calorie computer that will accept a user's name, phone number, address,

age, sex, height, weight, frame size, lifestyle and goals to customize the program to the individual;

(d) to provide a personalized hand held calorie computer that will use personal profile data to calculate the user's optimum weight;

(e) to provide a personalized hand held calorie computer that will use personal profile data to calculate the user's daily caloric input target;

(f) to provide a personalized hand held calorie computer that will use personal profile data to calculate daily caloric output;

(g) to provide a personalized hand held calorie computer that will use personal profile data to calculate daily individual calorie burning characteristics;

(h) to provide a personalized hand held calorie computer that will use personal profile data to calculate individual exercise calorie burning rates;

(i) to provide an interactive personalized hand held calorie computer that automatically calculates calories burned while walking, running, playing tennis, playing racquet/hand ball, playing golf or performing aerobic exercise by using optional activity sensing attachments;

(j) to provide an interactive personalized hand held calorie computer that automatically calculates calories burned while riding a bicycle by using optional odometer attachments;

(k) to provide a personalized hand held calorie computer that calculates daily graduated caloric targets the first

7

predetermined number of days of dieting to prevent metabolic rate changes which counteract the dieters efforts;

(l) to provide a personalized hand held calorie computer that generates tone or musical alarms when the user exceeds or nears his/her daily caloric/fat targets;

(m) to provide a personalized hand held calorie computer that generates tone and musical alarms with messages for personal, medical and dietary reasons;

(n) to provide a personalized hand held calorie computer that holds a predetermined number of days over seven days of historical weight data in the form of charts and graphs;

(o) to provide a personalized hand held calorie computer that holds a predetermined number of days over seven days of historical caloric input data in the form of charts and graphs;

(p) to provide a personalized hand held calorie computer that holds a predetermined number of days over seven days of. historical caloric output data in the form of charts and graphs;

(q) to provide a personalized hand held calorie computer that holds a predetermined number of days over seven days of historical fat input data in the form of charts and graphs;

(r) to provide a personalized hand held calorie computer with total privacy through the use of a PIN which may be changed at will;

(s) to provide a personalized hand held calorie computer with special medical diet, exercise and medication programming for users suffering from diabetes, high cholesterol, heart ailments hypoglycemia and other diseases;

(t) to provide a personalized hand held calorie computer with special programming for athletes such as but not restricted to long distance runners, weight lifters, and body builders;

(u) to provide a personalized hand held calorie computer with programming in English, Spanish, German, Italian, French and eventually other languages.

Further objects and advantages are to provide a personalized hand held calorie computer which allows the user to confidentially plan, record and track caloric and fat inputs and outputs on a daily, weekly and monthly basis without performing complicated mathematical computations to derive caloric burning rates, caloric data and or referring to cumbersome books containing long lists of food and exercise caloric values.

DRAWING FIGURES

In the drawings, closely related figures have the same number but different alphabetic suffixes.

FIG. 1 is a perspective view of our uniquely novel personal hand held calorie computer showing the LCD display, keyboard, scrolling arrows, main menu switch, the shift switch, the space switch, the enter switch, the delete switch, the reset switch, the start/stop switch the calories switch, the power switch and the esc switch.

FIG. 2 is a block diagram showing the interrelationships between all the features and functions of the personalized hand held calorie computer.

FIG. 3 is a block diagram of the hand held calorie computer's menu system showing how the menu driven concept operates in this invention.

8

FIG. 4 is a flowchart showing the steps and calculations utilized in deriving women's suggested weight.

FIG. 4A is a flowchart showing the steps and calculations utilized in deriving men's suggested weight.

FIG. 5 is a flowchart showing the steps and calculations utilized in deriving the individual's total daily caloric output.

FIG. 5A is a flowchart showing the steps and calculations utilized in deriving the individual's daily caloric and fat input targets.

FIG. 6 is a flowchart showing the steps taken to set the date and time on the personal hand held calorie computer.

FIGS. 7 and 7A are flowcharts showing the steps taken to input the personal profile data into the hand held calorie computer.

FIG. 8 is a flowchart showing the steps taken to set or reset the personal identification number in the personal hand held calorie computer.

FIG. 9 is a flowchart showing the steps taken to set alarms in the personal hand held calorie computer.

FIG. 10 is a flowchart showing the steps taken to view and or enter food consumed in the personal hand held calorie computer.

FIG. 11 is a flowchart showing the steps taken to view and or enter exercises performed in the personal hand held calorie computer.

FIGS. 12, 12A and 12B are flowcharts showing the steps taken to view weight and caloric/fat historical charts and graphs in the personal hand held calorie computer.

REFERENCE NUMERALS IN DRAWINGS

Drawing Reference Numerals Worksheet	
	PART NAME
30	Hand held computer case
32	Enter button
34	Delete button
36	Reset button
38	Start/Stop button
40	Calories button
42	On/Off button
44	Menu button
46	Shift button
48	Space button
50	Scroll buttons
52	Esc button
54	Screen
56	Keyboard
58	Setup Menu screen 1
60	Date/Time selection in Setup Menu
61	Clock Generator
62	Action, key in date and time
63	Receiver
64	Data in RAM - date and time
66	Your profile selection in Setup Menu
68	Action, key in your profile data
70	Action, press menu button
72	Action, key in your PIN
74	Data in RAM - personal data
76	First screen
78	Total daily output and target calculations
80	Password selection Setup Menu
82	Action, key in old and new password
84	Suggested weight calculations
86	Data in RAM - password

Drawing Reference Numerals Worksheet PART NAME				Drawing Reference Numerals Worksheet PART NAME	
88	Password comparison		208	Decision, 1 large frame?	
90	Main Menu 1 (setup, food, exercise)		210	Decision, 3inactive lifestyle? (for large frame)	
92	Alarms selection of Setup Menu		212	Decision, 1female?	
94	Action, key in alarm date, time, message, and select sound		214	1Suggested weight	
96	Message to screen		216	Decision, 6height? (inactive lifestyle large frame)	
98	Data in RAM - alarm date, time, message, and sound selection		217	To FIG. 4A item 1	
100	Date and time comparison		218	Decision, 1inactive lifestyle? (small frame)	
102	Food selection of Main Menu		220	Decision, 3height? (small frame, semi-active)	
104	Action, select food item				
106	Sound generation and speaker		222	Decision, 2inactive? (medium frame)	
108	Action, key in number of servings		224	Decision, 3active lifestyle? (for large frame)	
110	Activity sensor or timer input		225	Decision, 1active lifestyle? (for small frame)	
112	Data in RAM food item, calories, fat, and serving size		226	Decision, 1height? (for small frame inactive lifestyle)	
114	Exercise selection of Main Menu				
116	Action, select activity and activity rate		228	Decision, 2active lifestyle? (for medium frame)	
118	Action, key in exercise time		230	Decision, 5height? (for large frame)	
120	Manual or automatic selection				
122	Data in RAM - Exercise, rates, and time		232	Decision, 2height? (for small frame active lifestyle)	
124	Total calories selection in Main Menu		236	Decision, 4height? (for medium frame active lifestyle)	
126	Action, select data to view		238	Decision, 7height? (for large frame active lifestyle)	
128	Data in RAM - history date, weight and target		240	2Suggested weight	
130	Data in RAM - Today's totals (intake calories/fat, output/ calories, total calories/fat, and target calories/fat)		242	5Suggested weight	
			244	3Suggested weight	
			246	4suggested weight	
			248	6Suggested weight	
134	Data in RAM-History Menu List (calories/fat, exercise, & daily total calories)		250	7Suggested weight	
			252	8suggested weight	
136	Data in RAM - History Totals (date, intake cals/fat, output cals, target cals/fat)		253	From FIG. 4 item 1	
			254	Decision, 2small frame? (for male)	
138	Data in RAM- History Menu Graph (calories, exercise, & weight graph)		256	Decision, 2large frame? (for male)	
			258	Decision, 6inactive lifestyle? (for large frame male)	
144	Date and time screen		260	Decision, 4inactive lifestyle? (for small frame male)	
146	Sex, Birthdate, and Height screen				
150	Frame screen, (small, medium, large)		262	Decision, 9height? (for small framed semi-active male)	
152	Weight screen				
154	Lifestyle screen, (inactive, semi-active, active)		264	9Suggested weight	
			266	Decision, 5inactive lifestyle? (for medium framed male)	
156	Present daily calorie intake screen		268	Decision, 12height? (for inactive large framed male)	
158	Name, address screen				
162	Setup Menu screen 2, alarms		270	Decision, 4active lifestyle? (small framed male)	
164	Password screen, (old, new)				
166	Recurring alarm screen		274	Decision, 5active lifestyle? (for medium framed male)	
168	Target screen, (met, missed)				
170	State, zip, phone screen		276	Decision, 6active lifestyle? (for large framed male)	
172	Food selection screen				
174	One time alarm screen		278	Decision, 7height? (for small frame inactive lifestyle male)	
176	Historical calories/fat screen				
178	Goal screen, (lose, gain, or maintain weight)		280	Decision, 11height? (for large framed active lifestyle male)	
180	Exercise selection screen		282	Decision, 8height? (for small framed active lifestyle male)	
182	Todays total screen-calories/fat				
183	Exercise screen		284	Decision, 10height? (for medium framed active lifestyle male)	
184	Food entry screen, (serving size)				
186	Historical total calories screen		286	Decision, 13height? (for large framed active lifestyle male)	
188	Main Menu screen 2-total calories				
			288	10Suggested weight	
190	Historical output exercise screen		290	11Suggested weight	
192	Historical calories, fat graph screen		292	12Suggested weight	
			294	13Suggested weight	
194	Total Calories Menu screen		296	14suggested weight	
200	Calories graph		298	15Suggested weight	
201	Historical weight graph screen		300	16Suggested weight	
204	Start, suggested weight calculation flowchart, female		301	Start for Total Caloric Output Calculation	
206	Decision, 1 small frame?		302	Decision, manual input?	

Drawing Reference Numerals Worksheet
PART NAME

303	Activity caloric output (ACO) calculation
305	Timer from date and time
306	Activity caloric value (ACV) or rate
308	Activity time or pulse to caloric output (ACO) converter
310	Modified activity caloric value per minute (MACV) calculation
314	Weight, from personal profile
316	Keyed in time (KIT)
318	Activity exercise sensor transmitter
320	Daily total ACO accumulator
322	Daily calorie output (DCO) calculation (by lifestyle)
324	Total caloric output
326	Decision, 2female (total cal output)
328	Daily caloric output
330	DCO To FIG. 5 item 2
332	Total caloric output calculation for female
333	End of total caloric output calculation
334	Lifestyle from personal profile
336	Weight from personal profile
337	Daily caloric/fat target calculations, start
338	First date entered
340	Decision, is date = or < than 30 days?
342	Day counter
344	Day count calculation, caloric target modifier (CTM)
348	Change "present calorie intake" value to "daily caloric target" instruction
350	Present calorie intake from personal profile
352	Present caloric intake (PCI)
354	Caloric intake difference (CID)
356	Daily caloric output, calculation for females
358	Daily caloric target (DCT)
360	Daily adjustment calculation
362	Decision, 3female? (for daily calorie/fat targets)
364	Adjusted daily calorie target
365	End of daily cal/fat calculations
366	Input from FIG. 5, item 2
368	Daily fat target, calculation
370	Decision, 4female? (for daily fat target)
372	Daily fat target calculation for female
374	Daily fat target register
376	Start setting date & time, flowchart (FIG. 6)
386	Action, press enter button
390	Action, select setup, press enter button
394	Action, select date and time, press enter button
406	Action, press ESC button to exit system
408	End of date & time flow chart
409	Start setting personal profile (FIG. 7)
420	Action, select "your profile" press enter button
424	Action, key in sex, birthdate, and height
432	Action, select "frame size" press enter button
436	Action, key in weight
444	Action, select life style, press enter button
448	Action, key in calorie intake
451	To FIG. 7A, item 5
452	Input from FIG. 7 Item 5
456	Action, key in street #, street name and city

Drawing Reference Numerals Worksheet
PART NAME

464	Action, key in state, zip, and phone number
472	Action, select goal, key in weight, press enter button
474	End of setting personal profile flowchart
475	Start of setting password flowchart
500	Action, select "password", press enter button
510	End of setting password flowchart
514	Start setting alarms flowchart
516	Action, select "next", main menu press enter button
520	Action, select "alarms" press enter button
524	Decision, type of alarm?
532	End of setting of alarms flowchart
534	Action, select "next" (type of alarm) press enter button
538	Action, key in recurring time, start time, message, and press enter button
540	Start of food-view and enter flowchart
542	Action, select "food", press enter button
546	Key in name of food or use up-down arrows to find food name
560	Decision, want to enter or view more food?
562	End of food view and enter
563	Start of exercise, view & enter
564	Action, select "exercise" press enter button
568	Action, key in name of exercise or use up/down arrows to find exercise name and press enter button
572	Action, select speed of exercise
574	Decision, use exercise sensor or timer?
580	Action, key in P for pedometer, O for odometer or T for timer
586	Action, press start/stop button once to start exercise
588	Decision, do you want to view or enter other exercises?
590	End of exercise-view and enter
592	Action, press start/stop button once to stop exercise
593	Start of total calories flowchart conventional method
594	Start of total calories flowchart using calories button
596	Action, press calories button
598	Action, select "total calories", press enter button
602	Decision, todays totals or history?
604	Action, select "todays total", press enter button
605	To FIG. 12A item 4
606	Output to FIG. 12A item 5
607	Input from FIG. 12 item 4
608	Action, select "more", press enter button
610	Decision, met target?
612	Target screen for targets met
614	End of total calories
616	Target screen for targets missed
617	Input from FIG. 12 item 5
618	Select history, press enter button
622	Decision, view charts or graphs
624	Select calories/fat, press enter button
628	Decision view calories/fat, exercise, or daily total calories
630	Action, select "exercise", press enter button
634	Action, select "daily total calories",

-continued

Drawing Reference Numerals Worksheet
PART NAME

	press enter button
635	Output to FIG. 12B item 6
636	Input from FIG. 12A item 6
640	Action, select "next" (history menu) press enter button
644	Action, select "calories graph", press enter button
648	Decision, view calories, fat, or weight graph?
650	Action, select "fat graph", press enter button
654	Action, select "weight graph", press enter button

SUMMARY

The personalized hand held calorie computer is an interactive personal nutrition and exercise management system contained in a hand held computer. This system is capable of keeping in memory storage extensive food listings with associated calorie and fat content and exercise listings with associated calorie burning rates. The user can view food calorie and fat data or input it when he/she consumes it. A built in receiver in the unit allows the user to utilize various optional wireless activity sensing devices and bicycle odometers equipped with transmitting devices already on the market to automatically input burned calories while performing the exercise or activity. Exercises can also be entered manually. The user's personal data such as age, sex, weight, height and lifestyle which he/she enters into the system is used to calculate suggested weight, daily target calories and fat, daily calorie output, and exercise burning rates. Weight, caloric/fat input and caloric output status can be viewed in chart and graph form on a daily basis or historically over several week periods. The system can be programmed to accommodate special medical or athletic diet requirements such as that for diabetics or marathon runners. Alarms warn the user when he/she is approaching his/her daily caloric/fat targets. Alarms can also be set by the user on a one-time or recurring basis for personal or medical reasons such as for taking medications. Access to the system is password protected for the user's confidentiality. The personalized hand held held calorie computer will be available in various languages.

DESCRIPTION—FIG. 1

A typical embodiment of our unique interactive personalized hand held calorie computer designed to be used by anyone wishing to lose weight; gain weight or maintain a certain diet for personal, athletic or medical reasons by tracking calories and fat consumed and calories burned through normal lifestyle and exercises based on the individual's personal characteristics; goals; and lifestyle, is illustrated in FIG. 1 (perspective view). Item 30 is a hand held computer case containing therein a standard hand held electronic computer having the usual data processing circuitry, math coprocessing circuitry, ROM, RAM, LCD, and receiving unit for optional activity sensing and odometer attachments. Typical hand held computers of this type are manufactured by Casio (BOSS Organizer, 128KB model SF-7900) and Sharp (128KB Organizer, model YO370).

Our uniquely innovative interactive personalized hand held calorie computer utilizes an alphabetical keyboard 56 containing a plurality of contacts which shift to include

numbers 0 through 9, mathematical functions, and punctuation marks. It is our intent that these and the following listed contacts be arranged or labeled in varied configurations according to manufacturers' design.

Shown in FIG. 1 is shift contact 46 which enables the user to switch keyboard contacts 56 between the alphabetical and the secondary functions listed in the last paragraph. The space contact 48 allows the user to insert spaces when entering data into the computer. The directional arrow contacts 50 allow the user to scroll in four directions as indicated by the switch. The menu contact 44 causes the main menu to appear in the liquid crystal display (LCD) 54. The enter contact 32 which allows data to be stored in specific screens also allows activation of menu, next, more and exit selections. The delete contact 34 deletes specified data already stored. Reset contact 36 acknowledges alarms and stops alarm audible signal, resets the timer, activity sensing device and odometer. Start/stop toggle switch 38 starts and stops the timer, activity sensing device and odometer. The calories retrieval contact 40 allows direct access to up-to-the-minute caloric status. The on/off contact 42 turns the unit's power on and off and the esc contact 52 allows the user to instantly exit the system.

OPERATIONS FIG. 2

FIG. 2 is a system diagram/flow chart which shows the relationship between the various functions of the Personalized Hand Held Calorie Computer. To gain access to the main menu the user presses the menu button 70. The first screen 76 has a place to enter the password and the statement "If found call" with the name and phone number of the user or the statement "If found mail to" and the user's mailing address. The phone number and address information for the first screen is provided from your profile 74 data. When the user enters the PIN, block 72, and presses the enter button 32 it is compared with the password, block 88, in memory, block 86. If there is a match the main menu screen 90 appears. To change the password the user selects setup, block 58, in the main menu and presses the enter button 32 and selects password, block 80, and press the enter button 32 in the setup menu to gain access to the password screen 164. In the password screen the user keys in the old and new passwords, block 82, and presses the enter button 32 to change the password in RAM, block 86. To enter or change the date and time select date/time, block 60, at the main menu, key in desired date and time, block 62, at the date and time screen 144 to enter the data into RAM, block 64. That resets the system clock 61. To enter or change personal profile data select set up, block 58 in the main menu and press the enter button 32 and select your profile, block 66, in the setup menu and press the enter button to gain access to first personal profile screen. Data requested may be entered or changed, block 68. Pressing the enter button 32 will give the user access to the next personal profile until all 8 screens have been accessed. Exit from the system is accomplished by pressing the esc button 52. Selecting exit at any screen and pressing the enter button 32 returns the user to the previous screen. Sex, height, frame and lifestyle data in your profile, block 74, are fed into the suggested weight calculations, block 84, to derive a suggested weight which is displayed in the goal screen 178, of your profile, block 74. The user can set one time and recurring alarms by selecting setup 58, and pressing the enter button 32 and selecting alarms, block 92, in the setup menu and pressing the enter button 32. He/she then keys the desired alarm date, time, and message block 94 to store in RAM, block 98. The date and time are compared, block 100, with an input from

the date/time clock, block 61. When there is a match the sound generation circuit is activated which in turn feeds the speaker, block 106, and the message appears on the screen 96. The alarm is turned off by depressing the reset button 36. To view or enter food consumed the user selects food, block 102, in the main menu and presses the enter button 36. He/she can then select the food item, block 104, to retrieve food items from RAM, block 112. To make an entry of food which has been consumed the user then keys in the fraction or number of servings, block 108, and presses the enter button 32. These calories/fat associated with this entry are stored in memory under todays totals, block 130. To view or enter an exercise manually or automatically using the timer or optional pedometer/odometer attachments the user selects exercise, block 114, in the main menu and presses the enter button 32. He/she selects the activity, block 116, to retrieve activity from RAM, block 122. If the user selects manual operation, block 120 he/she enters the rate and the time, block 118, of the exercise and presses the enter button 32. For automatic operation he/she uses the built in timer or wireless activity sensor input, block 110 from the receiver 63. The manual and automatic exercise data is fed to the total daily output and target calculations, block 78, where it is used along with personal profile data to derive appropriate caloric/fat targets and caloric output information which in turn is stored under today's totals, block 130. The user may view current caloric/fat intake and exercise caloric output totals, block 130, by pressing the calories button, block 40, and going through the password screen. If he/she wishes to view historical data he/she selects total calories, block 124, in the main menu and presses the enter button 32. In the total calories menu screen 194 the user selects data to view, block 126, and presses the enter button 32. The user may then select history weight, block 128, from personal profile data or history calories, exercise, daily total calories, calories graphs, fat graphs and weight graphs from history totals in RAM, block 136 to gain access to historical charts (Calories/fat, Exercise and Daily Total Calories), block 134, and historical graphs (input Calories, input Fat and Weight), block 138. The date from the date/time, block 61, and present daily calorie intake from your profile, block 74, is the last of the data needed by today's totals, block 130, to produce the historical data. The History weight chart gets data from the date/time generator 61, the user's weight and goal from your profile data 74.

OPERATIONS FIG. 3

The ECC Menu system shown in FIG. 3 shows the paths taken for the selection of the personalized hand held calorie computer functions. To set or reset the date and or time the path is from the main menu 90 to the setup menu 58 to the date/time set up screen 144. To enter or change the personal profile the path is from the main menu 90 to the setup menu 58 to the sex/birth date/height screen 146 to the frame screen 150 to the weight screen 152 to the lifestyle screen 154 to present daily caloric intake screen 156 to name/address screen 158 to the state/phone screen 170 to the goal screen 178. To enter or change the PIN the path is from the main menu 90 to the setup menu 58 to the password screen 164. To set, change or delete alarms the path is from the main menu 90 to the set up menu screen one 58 to the setup menu screen two 162 to the one time alarm screen 174 to the recurring alarm screen 166. To view or enter food items consumed the path is from the main menu 90 to the food screen 172 to the food item entry/view screen 184. To enter or view exercise the path is from the main menu 90 to the exercise screen 180 to exercise entry/view screen 183. To

view current calories status the path is from the main menu screen one 90 to the main menu screen two 188 to the total calories screen 194 to todays totals screen 182 to target screen 168. To view historical calories/fat consumed chart the path is from the main menu screen one 90 to the main menu screen two 188 to the total calories screen 194 to the history menu 134 to the calories/fat chart screen 176. To view historical exercise calories output chart the path is from the main menu screen one 90 to the main menu screen two 188 to the total calories screen 194 to the history menu 134 to the exercise chart screen 190. To view historical daily total calories chart the path is from the main menu screen one 90 to the main menu screen two 188 to the total calories screen 194 to the history menu 134 to the daily total calories chart screen 186. To view historical calories consumed graph, the path is from the main menu screen one 90 to the main menu screen two 188 to the total calories screen 194 to the history menu screen one 134 to the history menu screen two 138 to the calories graph screen 200. To view historical fat consumed graph the path is from the main menu screen one 90 to the main menu screen two 188 to the total calories screen 194 to the history menu screen one 134 to the history menu screen two 138 to the fat graph 192. To view historical weight graph the path is from the main menu screen one 90 to the main menu screen two 188 to the total calories screen 194 to the history menu screen one 134 to the history menu screen two 138 to the weight graph screen 201.

OPERATIONS FIGS. 6, 7, 7A

The flowchart shown in FIG. 6 shows the steps to set or reset the standard clock and calendar programs in the date and time subsystem. The sequence begins with flowchart start symbol 376. Depressing the menu button 70 brings up the first screen 76. This screen may also contain the owner's name phone number and address if desired for identification purposes in case the unit is lost. When the correct password is entered, block 72, and the enter button is depressed, block 386 the main menu 90 appears on the LCD. The user selects setup and presses the enter button, block 390. He/she selects date and time from the setup menu screen 58, and presses the enter button, block 394. When the date/time screen 144 appears the user keys in the desired date and time, block 62, and presses the enter key, block 386, to store the information. To leave the date/time subsystem the user presses the esc button, block 406 which leads to flowchart end symbol 408.

FIGS. 7 and 7A flowcharts show the steps necessary to set or reset the personal profile data collection screens from which suggested weight, target weight, daily input caloric/fat targets, metabolic rate, exercise caloric burning characteristics and graduated daily caloric targets are derived. The flowchart sequence begins with oval flowchart start symbol 409. To enter the personal profile in the computer the user presses the menu button, block 70. When the first screen 76 appears he/she enters the password, block 72, and presses the enter button, block 386. At the main menu 90 he/she selects setup and presses the enter button, block 390. The user then selects your profile and presses the enter button, block 420, from the setup menu 58. He/she keys in his/her sex, birth date, and height, block 424, at the sex/birth date screen 146 and presses the enter button, block 386. From the frame screen 150 he/she selects his/her frame size and presses the enter button, block 432. Next, the user keys in his/her weight, block 436, in the weight screen 152 and presses the enter button, block 386. When the lifestyle screen 154 appears the user selects his/her lifestyle and presses the enter button, block 444. When the present daily

calorie screen **156** appears he/she enters his/her present calorie intake, block **448**. Flowchart continuation symbol **451** labeled "FIG. 7A, 5" takes sequence into FIG. 7A where it is picked up with flowchart continuation symbol **452** labeled "FIG. 7, 5".

At FIG. 7A after the calorie intake is keyed in the enter button is pressed, block **386**. When the name/address screen **158** appears he/she may enter his/her name, street number, street name, and city, block **456**, (if he/she wishes the information to show in the password screen) and presses the enter button, block **386**. When the state/phone screen **170** appears he/she keys in his/her state, zip code, phone number, block **464**, (if he/she wishes the information to show in the password screen) and presses the enter button, block **386**. When the goal screen **178** appears he/she selects his/her goal (lose x amount of pounds, gain x amount of pounds or maintain) and presses the enter button, block **472**. At this point the computer calculates and presents a suggested target weight based on the user's personal profile. The user is free to accept the suggested weight target or to establish his/her own weight target. The computer will use whatever goal figures are entered to establish future weight targets. This completes the entering of the personal profile data. To exit the system press the esc button, block **406**. Oval end flowchart symbol **474** stops the flowchart sequence.

OPERATIONS FIGS. 8, 9, 10

FIG. **8** is a flowchart for steps to enter or change the personal identification number. Oval start flowchart symbol **475** begins the flow chart sequence The user presses the menu button, block **70**, to access the main menu. At the first screen **76** the user enters the password, block **72**, which can be up to 5 digits long and presses the enter button, block **386**. The correct password allows access to the main menu. At the main menu screen **90** the user selects setup and presses the enter button, block **390**. At the setup menu screen **58** the user selects password and presses the enter button, block **500**, to access the password subsystem. In the password screen **164** the user enters the old and new passwords, block **82** and presses the enter button, block **386**. To exit from the password mode the user presses the esc button, block **406**. Oval end flowchart symbol **510** stops the sequence.

FIG. **9** is a flowchart outlining the steps necessary to set, reset and delete alarms. Oval start flowchart symbol **514** begins the sequence. The process begins the same as the others listed previously—by pressing the menu button, block **70**, which takes the user through the first screen **76** to the main menu screen **90** if the PIN is accepted. At the main menu he/she selects setup and presses the enter button, block **390**. In the setup menu screen **58** he/she selects next and presses the enter button, block **516**. From the setup menu screen two **162** alarms is selected and the enter button is pressed, block **520**, to access the alarm subsystem. By answering "type of alarm?" decision **524** he/she chooses whether to use a one time alarm or an alarm that is set to provide a signal on desired intervals. If the user wishes to set, reset or delete a one time alarm he/she enters the time, date and message, block **94** in the first alarm screen **174** and presses the enter button, block **386**. To exit the user presses the esc button, block **406**. If the user wishes to set, reset or delete a recurring alarm he/she selects next and presses the enter button, block **534**, while in first alarm screen **174**. In the recurring alarm screen **166** the user enters interval hours, first alarm time and message and presses the enter button, block **538**. To exit the system he/she presses the esc button, block **406**. Oval end flowchart symbol **532** stops the sequence.

FIG. **10** is a flowchart showing the steps taken to enter food items consumed or view food items before consumption. Oval start flowchart symbol **540** begins sequence. The user presses the menu button, block **70** for access to the system. When the first screen **76** appears the user enters his/her password, block **72** and presses the enter button, block **386**. If the password is accepted the main menu screen **90** appears. At the main menu screen the user selects food and presses the enter button, block **542**. When the food screen **172** appears the user may either key the food name or use the up/down arrows to scroll to the food item, block **546** and presses the enter button, block **386**. To enter food consumed the user keys in the number or fractions of servings, block **108**, and presses the enter button, block **386**. The food screen **172** will reappear. If the user wishes to view or enter other food items he/she answers yes to "want to enter or view more food?" decision **560** and keys in or scrolls to the food items, block **546**, and presses the enter button, block **386**. He/she can again key in the number or fraction of servings, block **108** and press the enter button, block **386**, to enter the food item into the system. If the user does not wish to view or enter anymore food items he/she presses the esc button to exit the system, block **406**. Oval end flowchart symbol **562** stops the sequence.

OPERATIONS FIGS. 11, 12, 12A, 12B

FIG. **11** shows a flowchart to view or enter exercises. Oval start flowchart symbol **563** begins sequence. The user presses the menu button, block **70**, to get the first screen **76** in which he/she enters his/her password, block **72**, and presses the enter button, block **386**. If the password is accepted the main menu **90** appears. In the main menu the user selects exercise and presses the enter button, block **564**. At the exercise screen **180** the user may key in the exercise name or scroll up/down to it and press the enter button, block **568**. At the selected exercise screen **183** the user selects the speed of the exercise, block **572**. Manual or automatic input decision is made by answering "use pedometer, odometer, or timer?" decision **574**. If the user has already performed the exercise and only wishes to enter it he/she then keys in the time duration of the exercise and presses the enter button, block **118**. The blank exercise screen **180** will reappear. To view or enter other exercises the user answers "do you want to view or enter other exercises?" decision **588**. If the user wishes to view or enter another exercise he/she may either key in or scroll to the exercise and press the enter button, block **568**. At the selected exercise screen the user again selects the speed of the exercise, block **572**; keys in the time duration of the exercise; and presses the enter button, block **118**. To exit the system the user presses the esc button, block **406**. If the user wishes to use the timer, an activity sensing device or the odometer attachments instead of entering the time duration of the exercise he/she enters "T" for timer, "P" for pedometer or "O" for odometer, block **580**, and presses the enter button **32**. To exit the system he/she presses the esc button, block **406**. To activate the exercise interactive mode press the start/stop button one time, block **586**. To stop the exercise interactive mode and enter the data into the system he/she presses the start/stop button one more time, block **592**. Oval end flowchart symbol **590** stops the sequence.

FIGS. **12, 12A 12B** are a flowchart showing the steps the user must take to view his/her daily and historical weight, fat intake, caloric intake, caloric output, and target data in the form of charts and graphs. To enter this mode the user can use the quick method or the conventional method. To use the conventional method begin with oval start flowchart symbol **593**. He/she presses the menu button, block **70**. When the

first screen 76 appears he/she keys in the PIN, block 72 and presses the enter button, block 386. If the PIN is accepted the first main menu screen 90 appears. The user then selects next and presses the enter button, block 516. At the second main menu screen 188 he/she selects total calories and presses the enter button, block 598. To select today's or historical data answer "today's totals or history?" decision 602. At the total calories screen 194, if the user wishes to view the current data he/she selects todays totals and presses the enter button, block 604. This brings up the current cals/fat intake screen number one 182. Flowchart continuation symbol 605 labeled "FIG. 12A, 4" connects FIG. 12 to flowchart continuation symbol 607 labeled "FIG. 12, 4". To see if he/she is meeting current caloric/fat intake targets he/she selects more and presses the enter button, block 608. If the user has met his/her targets the answer to "met target?" decision 610 is yes and the target met screen 612 appears. If the user has not met the target the answer to "met target?" decision 620 is no and the missed target screen 616 appears. To exit the system he/she presses the esc button, block 406.

To use the quick method begin with oval start flowchart symbol 594. Pressing the calories button, block 596, takes the user directly through the password screen to the current cals/fat intake screen number one 182. To view if he/she is meeting his/her current cal/fat intake target the user selects more and presses the enter button, block 608. If the user has met his/her targets the answer to "met target?" decision 610 is yes and the target met screen 612 appears. If the user has not met the target the answer to "met target?" decision 620 is no and the missed target screen 616 appears. When the user wishes to exit the system he/she presses the esc button, block 406.

Flowchart continuation symbol 606 labeled "FIG. 12A, 5" connects to FIG. 12 flowchart continuation symbol 617 labeled "FIG. 12, 5". At the total calories screen 194 he/she then selects history and presses the enter button, block 618, to view his/her historical data. The user decides whether to view charts or graphs by answering "view charts or graphs?" decision 622. To view historical calories/fat intake chart the user chooses calories/fat at "view calories/fat, exercise, or daily total calories?" decision 628 and selects calories/fat and presses the enter button, block 624, at the history menu 134. This brings up the cals/fat chart screen 176. To view the historical calories output chart the user chooses the exercise path when he/she selects exercise and presses the enter button, block 630 at the history menu 134. This brings up the exercise chart screen 190. To view historical daily total calories (intake minus output) chart the user takes that path at decision 628 when he/she selects daily total cals and presses the enter button, block 634, at the history menu 134. This brings up the daily total calories (intake minus output) chart 186. To exit the user presses the esc button, block 406. When the user selects historical graphs at the history menu 134 he/she is choosing to view the graphs at the "view charts or graphs?" decision 622. Flowchart continuation symbol 635 labeled "FIG. 12B, 6" connects flowchart FIG. 12A to FIG. 12B flowchart symbol 636 labeled "FIG. 12A, 6". To access the historical graphs the user selects next and presses the enter button, block 640. When the second screen of the history menu 138 appears he/she answers to the "view calories, fat, or weight graph?" decision 648 to view the historical calories intake, fat intake, or weight graph. To view the historical calories intake graph screen 200 the user selects calories graph and presses the enter button, block 644. To view the historical fat intake graph the user selects fat graph and presses the enter button, block 650. This brings up the fat graph screen 192. To view the historical weight

graph the user selects weight graph and presses the enter button, block 654. This brings up the weight graph screen 201. To exit the system from any of the graphs the user presses the esc button, block 406. Oval end flowchart symbol 614 stops the sequence.

OPERATIONS FIGS. 4, 4A

FIG. 4 is a flowchart showing the formula for women's suggested weight. The flow chart utilizes the user's sex, frame size, height and lifestyle from the data inputted into the personal profile applied to 8 basic formulas to derive the individual's suggested weight. The easiest way to demonstrate this flow chart is to work through various hypothetical situations. The first situation is a 22 year old 4 foot 11 inch female with a small frame, living an inactive lifestyle. The chart begins with the oval start symbol 204. The answer to "1female?" decision 212 is yes. The answer to "1small frame?" decision 206 is yes. The answer to "1inactive lifestyle?" decision 218 is yes. The answer to "1height=or >5 feet?" decision 226 is no, so the calculation for this person is 1.67×height in inches+number of years over age 30=7suggested weight 250. Inserting the values in the formula; 1.67×59+0 yields a suggested weight of 98.53 pounds.

If this person were 5 feet and one inch tall the answer to "1height=or >5 feet?" decision 226 would then be yes and the calculation would be 100+(4.07×number of inches over five feet)+(0.5×number of years over 30)=2suggested weight 240. Substituting values; 100+(4.07×1) +(0.5×0)= 104.07 pounds suggested weight.

If this same person led an active lifestyle it would change the answer of "1inactive lifestyle?" decision 218 to no. The answer to "1active lifestyle?" decision 225 is yes. The answer to "2height=or >5 feet?" decision 232 remains yes, so the formula changes to: 100+(4.452×number of inches over 5 feet)+(0.5×number of years over age 30)=3suggested weight 244. Inserting values in the calculation; 100+(4.452× 1)+(0.5×0)=104.452 pounds suggested weight.

If she leads a semi-active lifestyle, is 35 years old, and is 4 feet 11 inches tall the answer to "1active lifestyle?" decision 225 is no. The answer to "3height=or >5 feet?" decision 220 is no. The calculation is: 1.67×height in inches+number of years over age 30=7suggested weight 250. Substituting values; 1.67×59+5=103.53 pounds suggested weight.

If the above user were five feet one inch tall the answer to "3height=or >5 feet?" decision 220 changes to yes. The calculation used becomes: 100+(4.32×number of inches over five feet)+(0.5×number of years over age 30)= 1suggested weight 214. Substituting values: 100+(4.32×1) +(0.5×5)=106.82 pounds suggested weight.

If she has a medium frame and has an active lifestyle the answer to "1small frame?" decision 206 is no. The answer to "large frame?" decision 208 is no. The answer to "2inactive lifestyle?" decision 222 is no. The answer to "2active lifestyle?" decision 228 is yes. The answer to "4height=or >five feet?" decision 236 is yes. The calculation used is: 100+(5×number of inches over five feet)+(0.5×number of years over age 30)=4suggested weight 246. Substituting values; 100+(5×1)+(0.5×5)=107.5 pounds suggested weight.

If this 35year old 4 foot 11 inch female has a medium frame and leads a semi-active lifestyle the answer to "1small frame?" decision 206 is no. "The answer to "1large frame?" decision 208 is no. The answer to "2inactive lifestyle?" decision 222 is no. The answer to "2active lifestyle?" 228 is no. The answer to "2height=or >5 feet? "decision 232 is no.

The calculation is now: 1.67×height in inches+number of years over age 30=7suggested weight **250**. Substituting values: (1.67×59inches)+5 =104 pounds suggested weight.

If this same female leads an active lifestyle the answer to "1small frame?" decision **206** is no. "The answer to "1large frame?" decision **208** is no. The answer to "2inactive lifestyle?" decision **222** is no. The answer to "2active lifestyle?" decision **228** is yes. The answer to "4height=or >5 feet?" decision **236** is no. The calculation is now: 1.67×height in inches +number of years over age 30=7suggested weight **250**. Substituting values: (1.67×59 inches)+5=104 pounds suggested weight.

If this same female leads an inactive lifestyle the answer to "1small frame?" decision **206** is no. The answer to "1large frame?" decision **208** is no. The answer to "2inactive lifestyle?" decision **222** is no. The answer to "3 height=or >5 feet?" decision **220** is no. The calculation is: 1.67×height in inches+number of years over age 30=7suggested weight **250**. Substituting values: (1.67×59 inches)+5=104 pounds suggested weight.

If this 35 year old five foot one inch female has a large frame, instead, and has a semi-active lifestyle the answer to "1small frame?" decision **206** is no. The answer to "1large frame?" decision **208** is yes. The answer to "3inactive lifestyle?" decision **210** is no. The answer to "3active lifestyle?" decision **224** is no. The answer to "7height=or >5 feet?" decision **238** is yes. The calculation is now: 108+(5.28×number of inches over five feet)+(0.5×number of years over age 30)=6suggested weight **248**. Substituting values; 108+(5.28×1)+(0.5×5)=115.78 pounds suggested weight.

If her lifestyle becomes active the answer to "3active lifestyle?" decision **224** changes to yes. The answer to "5height=or >5 feet?" decision **230** remains yes and the calculation changes to: 108+(5.98×number of inches over five feet)+(0.5×number of years over age 30)=5suggested weight **242**. Substituting values; 108+(5.98×1)+(0.5×5)=116.48 pounds suggested weight.

If this person, again, changes her lifestyle to inactive the answer to "3inactive lifestyle?" decision **210** changes to yes. The answer to "6height=or >5 feet?" decision **216** remains yes. The calculation is: 100+(5×number of inches over five feet)+(0.5×number of years over age 30)=4suggested weight **246**. Substituting values; 100+(5×1)+(0.5×5)=107.5 pounds suggested weight.

If she is 4 feet 11 inches tall, instead, the answer to "6height=or >5 feet?" decision **216** is no. The calculation is: (1.68×height in inches)+number of years over age 30=8suggested weight **252**. Substituting values; (1.68×59) +5=104.12 pounds suggested weight.

. If this 4 foot 11 inch tall lady changes to a semi-active lifestyle the answer to "3inactive lifestyle?" decision **210** is no. The answer to "3active lifestyle?" decision **224** is yes. The answer to "5height=or >5 feet?" decision **230** is no. The calculation is: 1.68×height in inches)+number of years over age 30=8suggested weight **252**. Substituting values: (1.68×59)+5=104 pounds suggested weight.

If this 4 foot 11 inch tall lady changes to an active lifestyle the answer to "3inactive lifestyle?" decision **210** is no. The answer to "3active lifestyle?" decision **224** is no. The answer to "7height=or >5 feet?" decision **238** is no. The calculation is: 1.68×height in inches+number of years over age 30=8suggested weight **252**. Substituting values: (1.68×59) +5 =104 pounds suggested weight.

FIG. 4A is a flowchart showing the calculation for men's suggested weight. The flow chart utilizes the user's sex,

frame size, height and lifestyle from the data inputted into the personal profile applied to 8 calculations to derive the individual's suggested weight. The first situation is a 22 year old 4 foot 11 inch male with a small frame living an inactive lifestyle. The answer to "1female?" decision **212** (FIG. 4) is no and forcing the decision path through flow chart continuation symbol **217** labeled "FIG. 4A, 1" to flowchart continuation symbol **253** labeled "FIG. 4, 1" which is the start of FIG. 4A flowchart. The answer to "2small frame?" decision **254** is yes. The answer to "4inactive lifestyle?" decision **260** is yes. The answer to "7height=or >5 feet?" decision **278** is no. The calculation for this person is: 1.77×height in inches+number of years over age 30=15suggested weight **298**. Inserting the values in the calculation; 1.77×59 +0 yields a suggested weight of 104.43 pounds.

If this person were 5 feet and one inch tall the answer to "7height=or >5 feet?" decision **278** would then be yes and the calculation would be: 106+(4.9×number of inches over five feet)+(0.5×number of years over 30)=10suggested weight **288**. Substituting values; 106+(4.9×1)+(0.5×0)= 110.9 pounds suggested weight.

If his lifestyle is active the answer to "4inactive lifestyle?" decision **260** is no. The answer to "4active lifestyle?" decision **270** is yes. The answer to "8height=or >5 feet?" decision **282** is yes. The calculation is: 106+(5.364×number of inches over 5 feet)+(0.5×number of years over age 30)=12suggested weight **292**. Inserting values; 106+(5.364× 1)+(0.5×0)=111.364 pounds suggested weight.

If his lifestyle is semi-active and he is 35 years old the answer to "4active lifestyle?" decision **270** is no. The answer to "9height=or >5 feet?" decision **262** is yes. The calculation is: 106+(5.2×number of inches over 5 feet)+(0.5×number of years over age 30)=9suggested weight **264**. Substituting values; 106+(5.2×1)+(0.5×5)=113.7 pounds suggested weight.

If the user is 4 feet 11 inches tall, instead, the answer to "9height or >5 feet?" decision **262** is no. The calculation is: 1.77×height in inches+number of years over age 30=15suggested weight **298**. Substituting values; 1.77×59+ 5=109.43 pounds suggested weight.

If he has a medium frame and leads an active lifestyle the answer to "2small frame?" decision **254** is no. The answer to "2large frame?" decision **256** is no. The answer to "5inactive lifestyle?" decision **266** is no. The answer to "5active lifestyle?" decision **274** is yes. The answer to "10height=or >5 feet?" decision **284** is yes. The calculation used is: 106+(6×number of inches over five feet)+(0.5× number of years over age 30)=13 suggested weight **294**. Substituting values: 106+(6×1)+(0.5×5)=114.5 pounds suggested weight.

If he changed to an inactive lifestyle the answer to "5inactive lifestyle?" decision **266** is yes. The answer to "9height=or >5 feet" decision **262** is no. The calculation is: 1.77×height in inches+number of years over age 30=15suggested weight **298**. Substituting values: (1.77×59) +5=109 pounds suggested weight.

If this same man changes to a semi-active lifestyle the answer to "5inactive lifestyle?" decision **266** is no. The answer to "5active lifestyle?" decision **274** is no. The answer to "8height=to >5 feet?" decision **282** is no. The calculation is: 1.77×height in inches+number of years over age 30=15suggested weight **298**. Substituting values: (1.77×59) +5=109 pounds suggested weight.

If he changes to active lifestyle the answer to "5active lifestyle?" decision **274** is yes. The answer to "10height=>5

feet?" decision 284 is no. The calculation is: 1.77×height in inches +number of years over age 30=15suggested weight 298. Substituting values: (1.77×59)+5 =109 pounds suggested weight.

If he is a 35 year old five foot one inch male with a large frame and leads a semi-active lifestyle the answer to "2small frame?" decision 254 is no. The answer to "2large frame?" decision 256 is yes. The answer to "6inactive lifestyle?" decision 258 is no. The answer to "6active lifestyle?" decision 276 is no. The answer to "13height=or >5 feet?" decision 286 is yes. The calculation is now: 115+(6.36× number of inches over five feet)+(0.5×number of years over age 30)=14suggested weight 296. Substituting values: 115+(6.36×1)+(0.5×5) =123.86 pounds suggested weight.

If his lifestyle is active the answer to "6active lifestyle?" decision 276 is yes. The answer to "11height=or >than five feet?" decision 280 is yes. The calculation is: 115+(7.2× number of inches over five feet)+(0.5×number of years over age 30)=11 suggested weight 290. Substituting values; 115+(7.2×1)+(0.5×5)=124.7 pounds suggested weight.

If this person, again, changes his lifestyle to inactive the answer to "6inactive lifestyle?" decision 258 is yes. The answer to "12height=or >than five feet?" decision 268 is yes. The calculation changes to: 106+(6×number of inches over five feet)+(0.5×number of years over age 30)=13suggested weight 294. Substituting values; 106+(6×1)+(0.5×5)=114.5 pounds suggested weight.

If he is 4 feet 11 inches tall, instead, the answer to "12height=or >than 5 feet?" decision 268 is no. The calculation is: 1.8×height in inches+number of years over age 30=16suggested weight 300. Substituting values; 1.8×59+5=111.2 pounds suggested weight.

If this same man changes to a semi-active lifestyle the answer to "6inactive lifestyle?" decision 258 is no. The answer to "6active lifestyle?" decision 276 is no. The answer to "13height=or >5 feet?" decision 286 is no. The calculation is: 1.8×height in inches+number of years over age 30=16suggested weight 300. Substituting values: (1.8×59)+5=111 pounds suggested weight.

If he changes to active lifestyle the answer to "6active lifestyle?" decision 276 is yes. The answer to "11height=or >5 feet?" decision 280 is no. The calculation is: 1.8×height in inches+number of years over age 30=16suggested weight 300. Substituting values: (1.8×59)+5=111 pounds suggested weight. FIG. 5 shows the total caloric output calculation flowchart. Continuing with the unique personalized and interactive features of the personalized hand held caloric computer the total caloric output calculations are derived using personal profile data, exercise data inputted by the user and direct inputs from optional activity sensors and odometer attachments. The at-rest daily caloric output (DCO) calculation 322 utilizes the user's weight, block 336, and lifestyle, block 334, to produce a figure roughly representing the amount of calories the individual burns performing every day routine. The DCO is also fed into FIG. 5A from FIG. 5 through continuation symbol 330 labeled "FIG. 5A, 2". For a 100 pound active person the basic DCO calculation 322 is: 10.45×weight+760. Substituting values; 10.45×100+760= 1805 DCO. For a semi-active lifestyle the DCO would drop to 1615 calories. An inactive lifestyle would drop the DCO even further to 1425 calories.

The flowchart for FIG. 5 begins with the oval start symbol 301. If the user chooses to key in an exercise the answer to "manual input?" decision 302 is yes. The activity caloric output ACO calculation 303=modified activity caloric value (MACV)×(DCO/1440)×keyed in time (KIT). When MACV

calculation 310=[(weight from personal profile, block 314/ 2.2)×activity caloric value (ACV), calculation block 306]/ 60; ACV calculation 306=a figure between 0 and 99 representing how many times more strenuous an activity is than DCO based on one of three levels (Low, medium or fast/ heavy) stored with exercise data; and KIT 316=the time keyed in "my Time" by user while in the particular exercise screen (FIG. 11 item 183). For this example if the user who weighs 100 pounds and leads a semi-active life style performs low intensity aerobic exercise for 30 minutes the ACV is 3. Substituting values for MACV; [(100/2.2)×3]/60=2.27. Substituting values for ACO; 2.27×(1615/1440)×30=76.37 calories expended performing aerobics at slow speed for 30 minutes. This total is stored in the daily total ACO accumulator 320 where it available for viewing. At midnight each day the ACO is transferred to the total caloric output register 324 where it is added to the DCO.

If the user chooses to use the timer, an activity sensing device or the odometer the answer to "manual input?" decision 302 is no. The input from the timer, block 305 or activity sensing device or odometer transmitter 318 relays data to the receiver 63 which in turn feeds the activity time or pulse to caloric output ACO converter 308 where it is mixed with the MACV from calculation block 310 and the timer input from the system clock, block 305, to produce the ACO. This output also feeds into the daily total ACO accumulator 320. This data is transferred to the total caloric output register 324 and added to DCO. If the user is male the answer to "2female?" decision 326 is no and total caloric output value 328 is transferred to storage beyond the charts end indicated by the end oval symbol 333. If the user is female the answer to "2female?" decision 326 is yes. The women's total caloric output calculation 332 is: total caloric output×0.73 and is transferred to storage through daily caloric output value 328 and the oval end symbol 333.

FIG. 5A is the daily caloric/fat target calculation flowchart which utilizes the user's personal profile data of lifestyle, weight, sex and starting caloric intake to establish a graduated caloric input target the first 30 days and derive a personal caloric input target thereafter. The flowchart begins with the oval start symbol 337. The "first date entered from date/time setup" block 64 goes to "first date entered" register 338 where it is used as a starting reference. This starting reference date is compared with the system calendar date. If the answer to "is date=or <than 30 days?" decision 340 is yes a pulse is fed to the day counter 342 increasing its count by one. Assuming that the user is a 150 pound semi-active female whose starting daily caloric input is 2300 calories and the personalized hand held calorie computer has been in use 10 days. The calculation is: day count×0.0333=caloric target modifier (CTM) 344. Substituting values; 10×0.0333= 0.333 CTM. The DCO of 2137 calories from FIG. 5 is fed through flowchart continuation symbol 366 labeled "FIG. 5, 2" to "3female?" decision block 362 where the answer is yes and women's daily caloric output calculation 356 is used to derive the daily caloric target (DCT) 358. The DCT is subtracted from the present calorie intake (PCI) register 352 to produce a caloric intake difference (CID) value 354 used in the daily adjustment formula 360. In this case the data in the present calorie intake (PCI) register 352 is the present calorie intake from the personal profile 350 data value. Therefore, the value of PCI is now 2300 calories. Substituting values: (2300)−(2137.5×0.73)=739.62×0.333=246.29 daily adjustment. The daily adjustment is subtracted from present caloric intake to derive the adjusted daily caloric target 364. Substituting values; 2300−246.29=2053.71 caloric input target for the 10th day in use which is stored in